Unpivot columns

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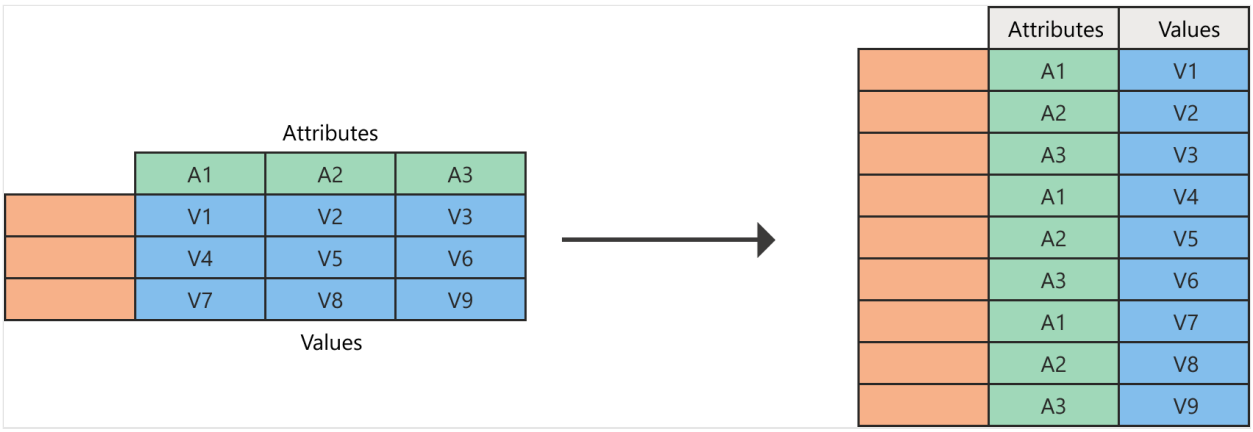
In Power Query, you can transform columns into attribute-value pairs, where columns become rows.



For example, given a table like the following, where country rows and date columns create a matrix of values, it's difficult to analyze the data in a scalable way.

	Country	6/1/2020	7/1/2020	8/1/2020
1	USA	*785*	*450*	*567*
2	Canada	*357*	*421*	*254*
3	Panama	*20*	*40*	*80*

Instead, you can transform the table into a table with unpivoted columns, as shown in the following image. In the transformed table, it's easier to use the date as an attribute to filter on.

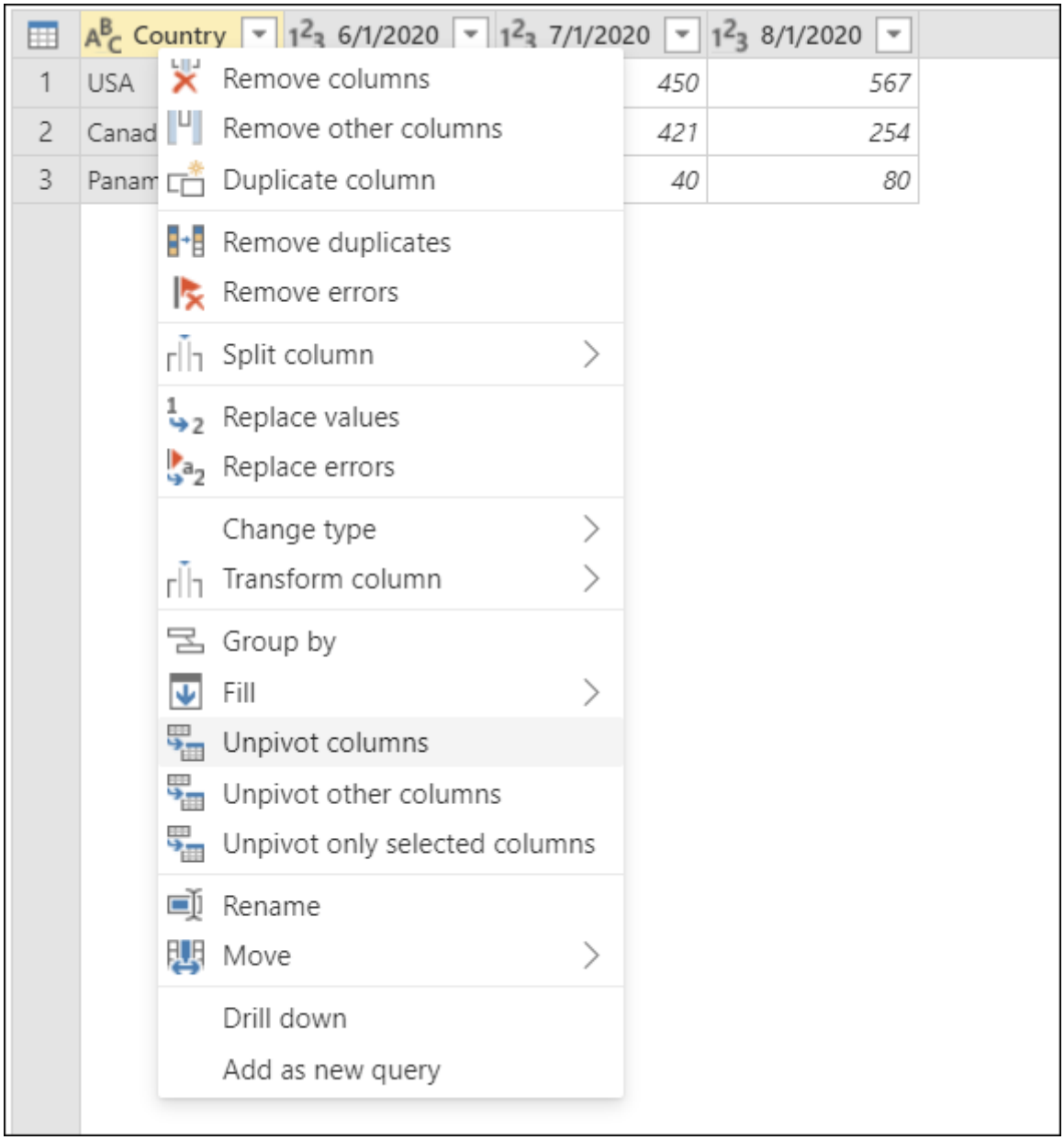
	Country	Attribute	Value
1	USA	6/1/2020	*785*
2	USA	7/1/2020	*450*
3	USA	8/1/2020	*567*
4	Canada	6/1/2020	*357*
5	Canada	7/1/2020	*421*
6	Canada	8/1/2020	*254*
7	Panama	6/1/2020	*20*
8	Panama	7/1/2020	*40*
9	Panama	8/1/2020	*80*

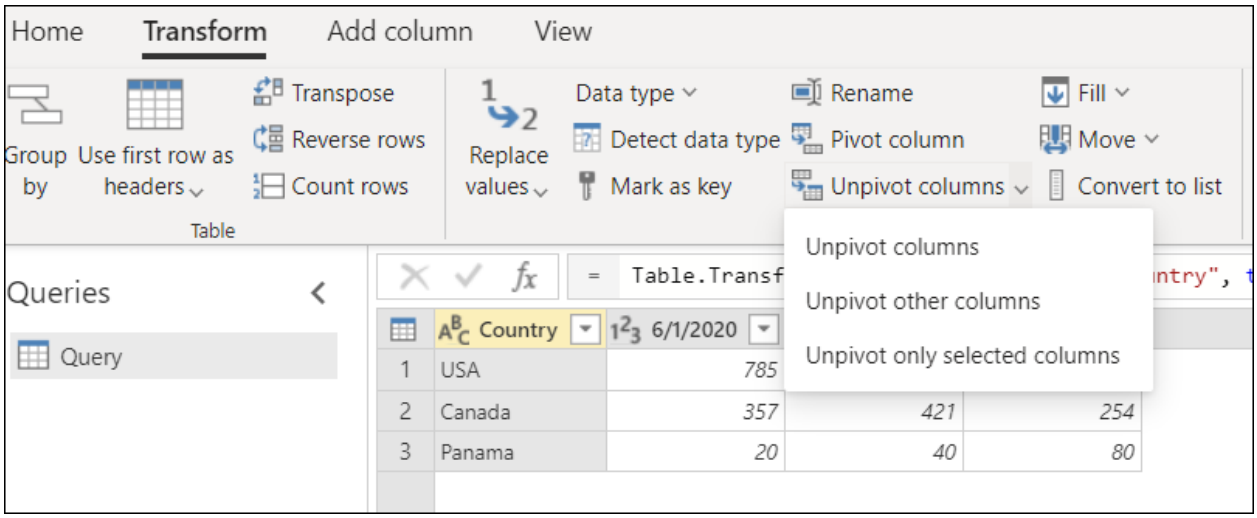
The key in this transformation is that you have a set of dates in the table that should all be part of a single column. The respective value for each date and country should be in a different column, effectively creating an attribute-value pair.

Power Query will always create the attribute-value pair by using two columns:

- **Attribute**: The name of the column headings that were unpivoted.
- **Value**: The values that were underneath each of the unpivoted column headings.

There are multiple places in the user interface where you can find **Unpivot columns**. You can right-click the columns that you want to unpivot, or you can select the command from the **Transform** tab in the ribbon.



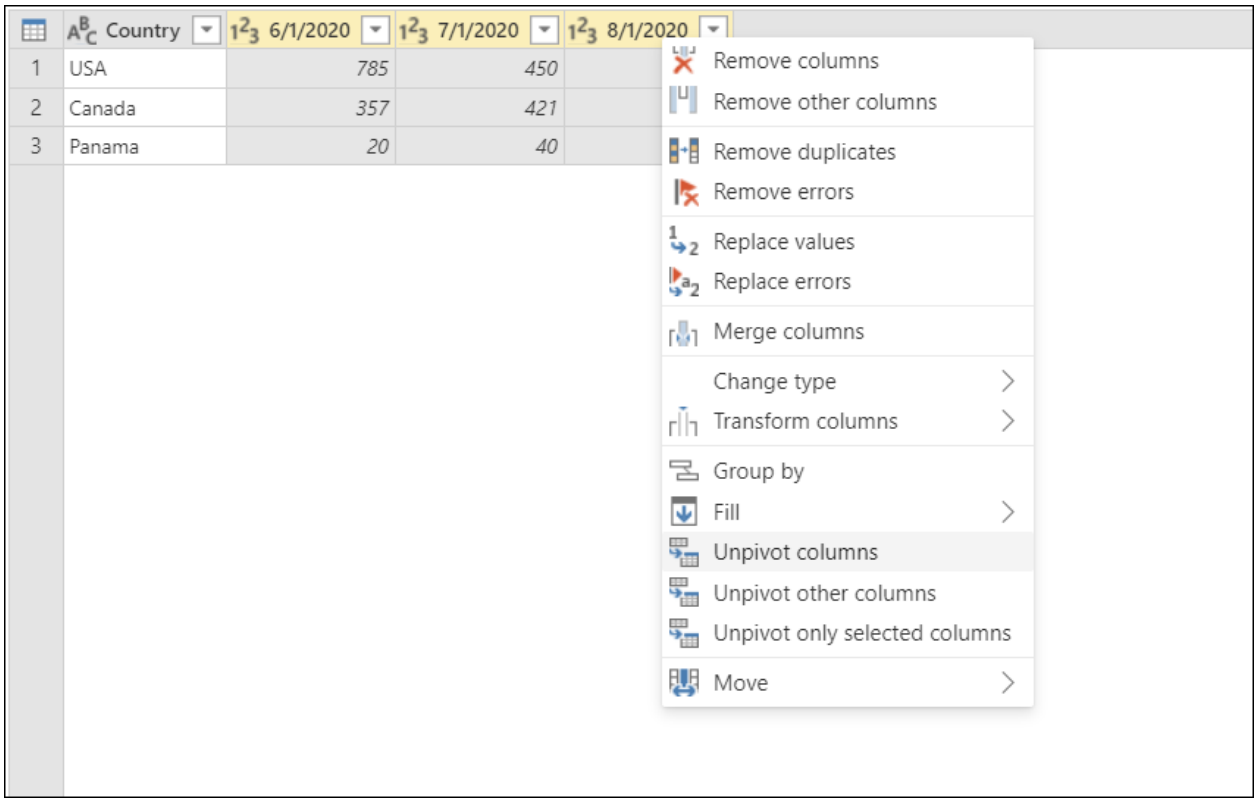


There are three ways that you can unpivot columns from a table:

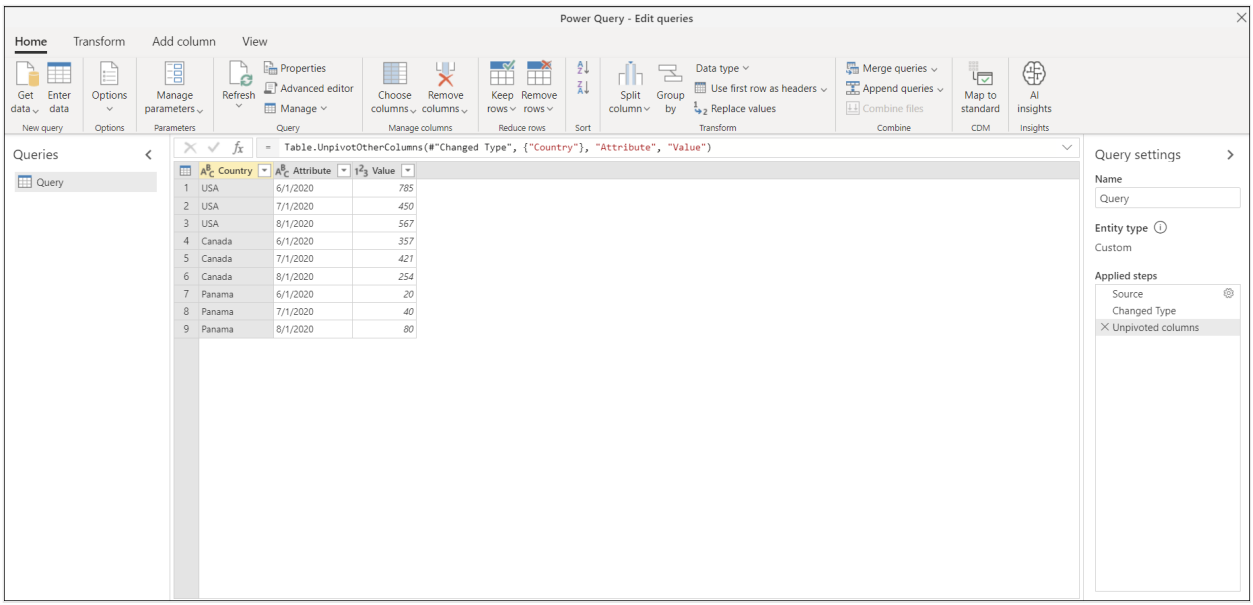
- **Unpivot columns**
- **Unpivot other columns**
- **Unpivot only selected columns**

Unpivot columns

For the scenario described above, you first need to select the columns you want to unpivot. You can select **Ctrl** as you select as many columns as you need. For this scenario, you want to select all the columns except the one named **Country**. After selecting the columns, right-click any of the selected columns, and then select **Unpivot columns**.

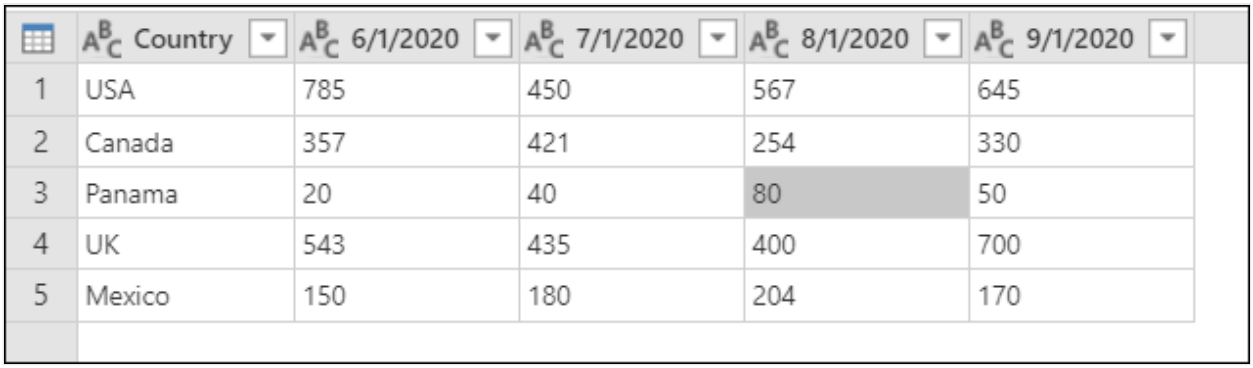


The result of that operation will yield the result shown in the following image.



Special considerations

After creating your query from the steps above, imagine that your initial table gets updated to look like the following screenshot.



	Country	6/1/2020	7/1/2020	8/1/2020	9/1/2020
1	USA	785	450	567	645
2	Canada	357	421	254	330
3	Panama	20	40	80	50
4	UK	543	435	400	700
5	Mexico	150	180	204	170

Notice that you've added a new column for the date 9/1/2020 (September 1, 2020), and two new rows for the countries/regions UK and Mexico.

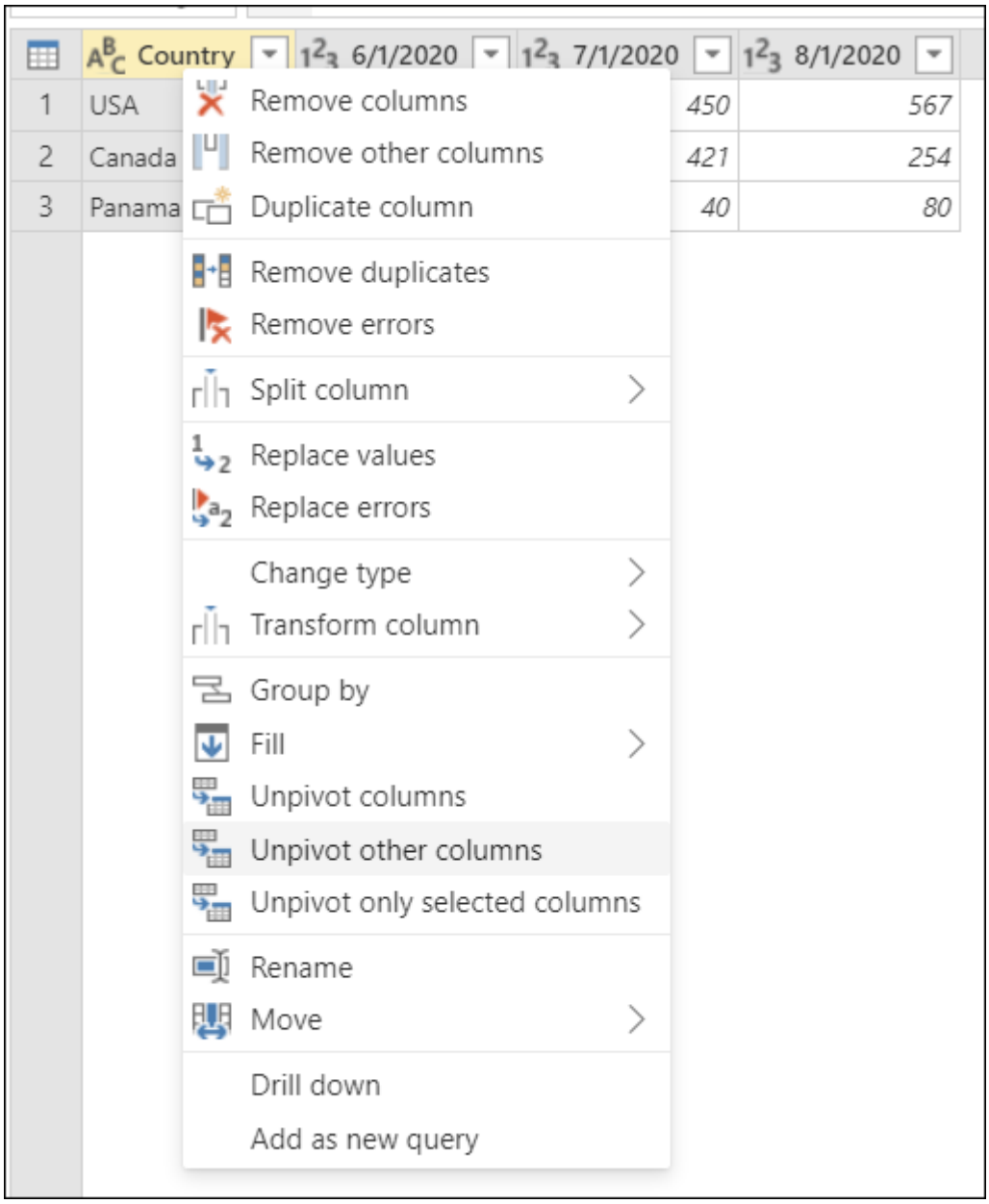
If you refresh your query, you'll notice that the operation will be done on the updated column, but won't affect the column that wasn't originally selected (**Country**, in this example). This means that any new column that's added to the source table will be unpivoted as well.

The following image shows what your query will look like after the refresh with the new updated source table.

	Country	Attribute	Value
1	USA	6/1/2020	785
2	USA	7/1/2020	450
3	USA	8/1/2020	567
4	USA	9/1/2020	645
5	Canada	6/1/2020	357
6	Canada	7/1/2020	421
7	Canada	8/1/2020	254
8	Canada	9/1/2020	330
9	Panama	6/1/2020	20
10	Panama	7/1/2020	40
11	Panama	8/1/2020	80
12	Panama	9/1/2020	50
13	UK	6/1/2020	543
14	UK	7/1/2020	435
15	UK	8/1/2020	400
16	UK	9/1/2020	700
17	Mexico	6/1/2020	150
18	Mexico	7/1/2020	180
19	Mexico	8/1/2020	204
20	Mexico	9/1/2020	170

Unpivot other columns

You can also select the columns that you don't want to unpivot and unpivot the rest of the columns in the table. This operation is where **Unpivot other columns** comes into play.



The result of that operation will yield exactly the same result as the one you got from **Unpivot columns**.

	Country	Attribute	Value
1	USA	6/1/2020	785
2	USA	7/1/2020	450
3	USA	8/1/2020	567
4	Canada	6/1/2020	357
5	Canada	7/1/2020	421
6	Canada	8/1/2020	254
7	Panama	6/1/2020	20
8	Panama	7/1/2020	40
9	Panama	8/1/2020	80

> **Note**
>
> This transformation is crucial for queries that have an unknown number of columns. The operation will unpivot all columns from your table except the ones that you've selected. This is an ideal solution if the data source of your scenario got new date columns in a refresh, because those will get picked up and unpivoted.

Special considerations

Similar to the **Unpivot columns** operation, if your query is refreshed and more data is picked up from the data source, all the columns will be unpivoted except the ones that were previously selected.

To illustrate this, say that you have a new table like the one in the following image.

	Country	6/1/2020	7/1/2020	8/1/2020	9/1/2020
1	USA	785	450	567	645
2	Canada	357	421	254	330
3	Panama	20	40	80	50
4	UK	543	435	400	700
5	Mexico	150	180	204	170

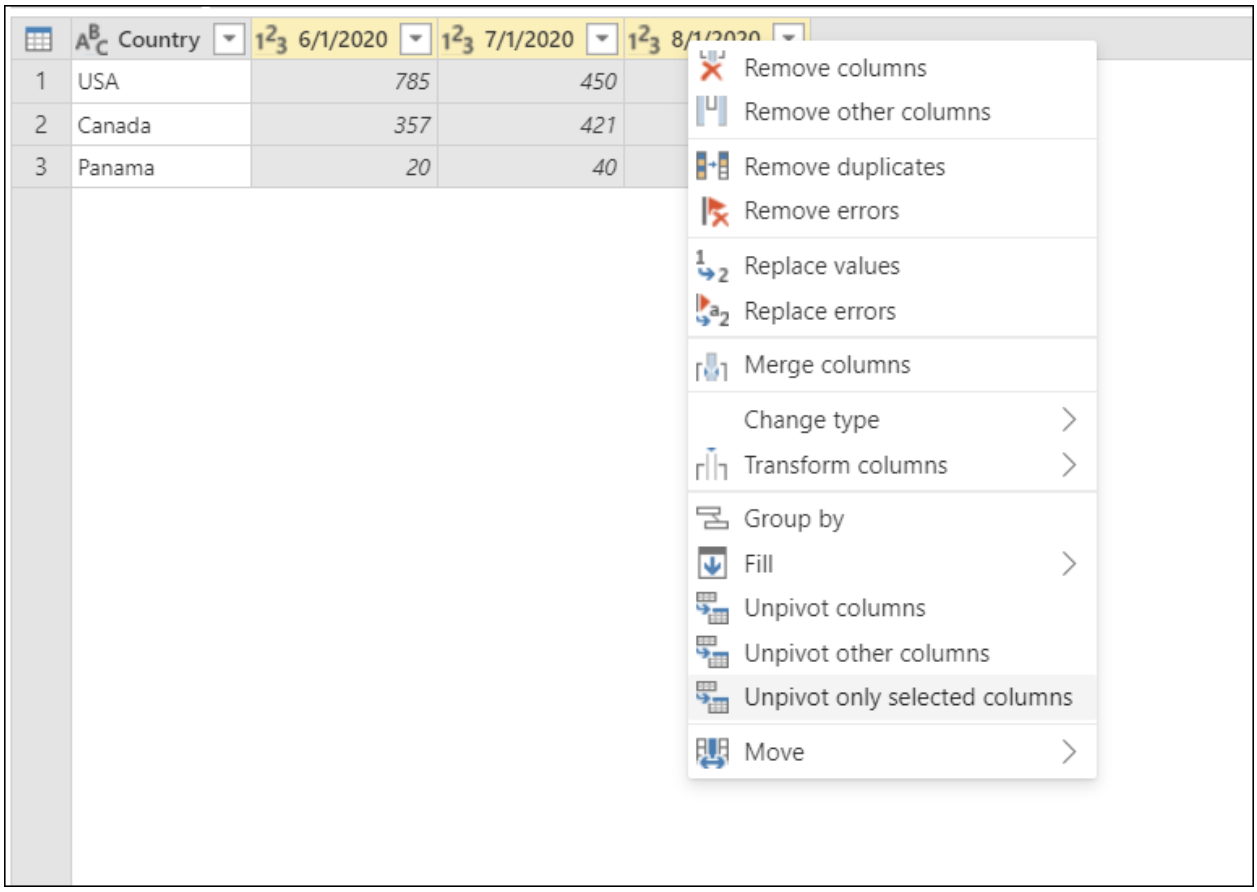
You can select the **Country** column, and then select **Unpivot other column**, which will yield the following result.

	Country	Attribute	Value
1	USA	6/1/2020	785
2	USA	7/1/2020	450
3	USA	8/1/2020	567
4	USA	9/1/2020	645
5	Canada	6/1/2020	357
6	Canada	7/1/2020	421
7	Canada	8/1/2020	254
8	Canada	9/1/2020	330
9	Panama	6/1/2020	20
10	Panama	7/1/2020	40
11	Panama	8/1/2020	80
12	Panama	9/1/2020	50
13	UK	6/1/2020	543
14	UK	7/1/2020	435
15	UK	8/1/2020	400
16	UK	9/1/2020	700
17	Mexico	6/1/2020	150
18	Mexico	7/1/2020	180
19	Mexico	8/1/2020	204
20	Mexico	9/1/2020	170

Unpivot only selected columns

The purpose of this last option is to only unpivot specific columns from your table. This is important for scenarios where you're dealing with an unknown number of columns from your data source and you only want to unpivot the selected columns.

To perform this operation, select the columns to unpivot, which in this example is all the columns except the **Country** column. Then right-click any of the columns you selected, and then select **Unpivot only selected columns**.



Notice how this operation will yield the same output as the previous examples.

	Country	Attribute	Value
1	USA	6/1/2020	785
2	USA	7/1/2020	450
3	USA	8/1/2020	567
4	Canada	6/1/2020	357
5	Canada	7/1/2020	421
6	Canada	8/1/2020	254
7	Panama	6/1/2020	20
8	Panama	7/1/2020	40
9	Panama	8/1/2020	80

Special considerations

After doing a refresh, if our source table changes to have a new **9/1/2020** column and new rows for UK and Mexico, the output of the query will be different from the previous examples. Say that our source table, after a refresh, changes to the table in the following image.

	Country	6/1/2020	7/1/2020	8/1/2020	9/1/2020
1	USA	785	450	567	645
2	Canada	357	421	254	330
3	Panama	20	40	80	50
4	UK	543	435	400	700
5	Mexico	150	180	204	170

The output of our query will look like the following image.

	Country	9/1/2020	Attribute	Value
1	USA	*645*	6/1/2020	*785*
2	USA	*645*	7/1/2020	*450*
3	USA	*645*	8/1/2020	*567*
4	Canada	*330*	6/1/2020	*357*
5	Canada	*330*	7/1/2020	*421*
6	Canada	*330*	8/1/2020	*254*
7	Panama	*50*	6/1/2020	*20*
8	Panama	*50*	7/1/2020	*40*
9	Panama	*50*	8/1/2020	*80*
10	UK	*700*	6/1/2020	*543*
11	UK	*700*	7/1/2020	*435*
12	UK	*700*	8/1/2020	*400*
13	Mexico	*170*	6/1/2020	*150*
14	Mexico	*170*	7/1/2020	*180*
15	Mexico	*170*	8/1/2020	*204*

It looks like this because the unpivot operation was applied only on the **6/1/2020**, **7/1/2020**, and **8/1/2020** columns, so the column with the header **9/1/2020** remains unchanged.

Practice Assessment for Exam PL-300: Microsoft Power BI Data Analyst

Question 23 of 50

You have an Excel spreadsheet that contains three columns labeled Year, 2021, and 2012. The entries in rows for the first column consists of names of the individual months in the year while the other two columns contain the sales amount for each month for the corresponding year.

You import data from the Excel spreadsheet into Power BI Desktop.

You need to transform the data so it will consist of three columns, with the first one containing month, the second containing year, and the third containing the sales amount for that month and year.

Which transformation should you use first?

- ○ Pivot
- ○ Remove Columns
- ○ Transpose Table
- ◉ Unpivot

✓ **This answer is correct.**

Selecting Unpivot will allow you to shape the current table into the one with the year, month, and sales amount columns, which will need to be renamed afterwards. Pivot would be applicable in the opposite scenario, in which flat data needs to be reorganized into one containing aggregate values for each unique value in each column. Transposing would switch rows and columns. Removing columns would result in a table with insufficient data to perform unpivot.

Shape the initial data - Training | Microsoft Learn

Unpivot columns - Power Query | Microsoft Learn